

CLAIM AMENDMENTS

1. (currently amended) A method for controlling communications access between a hub and a plurality of distributed stations over a medium, the method comprising the steps of:

(a) the hub allocating a plurality of channels for data communications between the stations and the hub, the number of channels being at least equal to the number of stations, and each station owning at least one channel, and wherein each channel ~~being~~ is varying in a distinct one of an empty-, a reserved-, or an owner-state, and ~~whereby:~~ wherein:

(i) the empty-state provides a channel to which any station can have access;

(ii) the reserved-state provides a channel having an owner and to which a station having made a reservation with the hub, but not owning the channel, can have access if not being used by the owner, and further to which the owner can resume access on demand; and

(iii) the owner-state provides a channel to which only the owning station has access; and

(b) the hub re-allocating the respective state and/or the number of channels over time on the basis of each station's data requirements.

2. (original) A method as claimed in claim 1, wherein the data communication is over a medium having finite bandwidth.

3. (previously presented) A method as claimed in claim 1, wherein there are at least as many channels in the owner-state as there are stations.

4. (previously presented) A method as claimed in claim 1, comprising the further step of a station at any time requesting of the hub to be allocated one or more extra channels.

5. (previously presented) A method as claimed in claim 1, whereby a channel further provides for management traffic between each station and the hub, and

comprises the further step, as management traffic, of a station negotiating with the hub to be allocated a required number of channels in the owner-state.

6. (original) A method as claimed in claim 5, comprising the further step of a station negotiating with the hub to be allocated a required number of channels in the reserved-state.

7. (previously presented) A method as claimed in claim 5, comprising the further steps of a station requesting an indication of the number of stations seeking to register, and the hub responding thereto, wherein said station receives said indication by request and indication.

8. (previously presented) A method as claimed in claim 5, comprising the further steps of a station requesting an indication of the number of stations seeking to register, and the hub responding thereto, wherein said station receives said indication by broadcast.

9. (previously presented) A method as claimed in claim 5, comprising the further steps of a station requesting an indication of the number of stations seeking to use a channel and the hub responding thereto, whereby said station receives said indication by request and indication.

10. (previously presented) A method as claimed in claim 5, comprising the further steps of a station requesting an indication of the number of stations seeking to use a channel and the hub responding thereto, whereby said station receives said indication by broadcast.

11. (previously presented) A method as claimed in claim 5, comprising the further step of a station requesting the hub to be deregistered to give-up allocated channels.

12. (previously presented) A method as claimed in claim 5, comprising the further step of a station requesting the hub to delay any data communication to the station for a period of time to be in a sleep mode.

13. (currently amended) A method as claimed in claim 1, ~~whereby~~ wherein the step of re-allocation includes ~~the step of~~ temporarily ascribing use of reserved-state channel to a non-owning station.

14. (original) A method as claimed in claim 13, whereby said temporary use is rescinded following lapse of a time period of no use by the ascribed station.

15. (cancelled)

16. (currently amended) A method as claimed in claim 1, ~~whereby~~ wherein each said channel ~~comprises~~ has a plurality of uplink and downlink slots ~~and each slot comprises a data unit of varying length, and wherein each channel has either hub-to-mobile slots or mobile-to-hub slots, and comprising the further step of the length of hub-to-mobile slots being arranged to be different from the length of the mobile-to-hub slots~~ number of slots within a channel being variable to account for each station's data requirements.

17. (cancelled)

18. (cancelled)

19. (currently amended) A method for controlling communications access between a hub and a plurality of mobile stations via a plurality of channels providing data access therebetween, there being at least as many channels as mobile stations, and the channels ~~being~~ is varying in a distinct one of an empty-, a reserved-, or an owner-state, and ~~whereby:~~ wherein:

(i) the empty-state provides a channel having an owner and to which any station can have access if not being used by the owner, and further to which the owner can resume access on demand;

(ii) the reserved-state provides a channel to which a station having made a reservation with the hub, but not owning the channel, can have access; and

(iii) the owner-state provides a channel to which only the owning station has access;

the method comprising the steps of the hub re-allocating the respective state and/or the number of channels over time on the basis of each station's data requirements.

20. (original) A method as claimed in claim 19, wherein the data communication is over a medium having finite bandwidth.

21. (previously presented) A method as claimed in claim 19, whereby a channel further provides for management traffic between each station and the hub, and comprises the further step, as management traffic, of a station negotiating with the hub to be allocated a required number of channels in the owner-state.

22. (previously presented) A method as claimed in claim 19, wherein the medium is free space.

23. (previously presented) A method as claimed in claim 19, comprising the further step of a station negotiating with the hub to be allocated a required number of channels in the reserved state.

24. (previously presented) A method as claimed in claim 19, comprising the further steps of a station requesting an indication of the number of stations seeking to register, and the hub responding thereto, wherein said station receives said indication by request and indication.

25. (previously presented) A method as claimed in claim 19, comprising the further steps of a station requesting an indication of the number of stations seeking to register, and the hub responding thereto, wherein said station receives said indication by broadcast.

26. (previously presented) A method as claimed in claim 19, comprising the further steps of a station requesting an indication of the number of stations seeking to use a channel, and the hub responding thereto, wherein said station receives said indication by request and indication.

27. (previously presented) A method as claimed in claim 19, comprising the further steps of a station requesting an indication of the number of stations seeking to use a channel, and the hub responding thereto, wherein said station receives said indication by broadcast.

28. (previously presented) A method as claimed in claim 19, comprising the further step of a station requesting the hub to be deregistered to give-up allocated channels.

29. (previously presented) A method as claimed in claim 19, comprising the further step of a station requesting the hub to delay any data communications to the station for a period of time to be in a step mode.

30. (previously presented) A method as claimed in claim 19, whereby the step of reallocation includes the step of temporarily ascribing use of reserved-state channel to a non-owning station.

31. (original) A method as claimed in claim 30, whereby said temporary use is rescinded following lapse of a time period of no use by the ascribed station.

32. (cancelled)

33. (currently amended) A method as claimed in claim 19, ~~whereby~~ wherein each said channel ~~comprises~~ has a plurality of uplink and downlink slots ~~and each slot comprises a data unit of varying length, and wherein each channel has either hub-to-mobile slots or mobile-to-hub slots, and comprising the further step of the length of hub-to-mobile slots being arranged to be different from the length of the mobile-to-hub slots~~ the hub varying the number of slots within a channel to account for each station's data requirements.

34. (cancelled)

35. (cancelled)

36. (currently amended) A communications system having controlled data access to a medium, the system comprising:

a hub having transceiving means for communication via the medium and data processing means;

a plurality of distributed stations, each having transceiving means for communication with the hub via the medium and data processing means;

and wherein said data processing means of the hub ~~and the stations co-operate to allocate~~ allocates a plurality of channels for data communications between the stations and the hub, the number of channels being at least equal to the number of stations, and each station owning at least one channel, and wherein each channel being is varyingly in a distinct one of an empty-, a reserved-, or an owner-state, and wherein:

(i) the empty-state provides a channel having an owner and to which any station can have access if not being used by the owner, and further to which the owner can resume access on demand,

(ii) the reserved-state provides a channel to which a station having made a reservation with the hub, but not owning the channel, can have access, and

(iii) the owner-state provides a channel to which only the owning station has access,

and co-operate to re-allocate the respective state and/or the number of channels over time on the basis of each station's data requirements.

37. (original) A system as claimed in claim 36, wherein the stations are mobile and the medium is free space.

38. (previously presented) A system as claimed in claim 36, wherein the data communications is over a medium having finite bandwidth.

39. (previously presented) A system as claimed in claim 36, wherein there are at least as many channels in the owner-state as there are stations.

40. (previously presented) A system as claimed in claim 36, wherein a station data processing means, at any time, requests from the hub data processing means to be allocated one or more extra channels.

41. (previously presented) A system as claimed in claim 36, wherein the hub data processing means further provides for management traffic between each station and the hub, and the management traffic includes a station negotiating with the hub to be allocated a required number of channels in the owner-state.

42. (original) A system as claimed in claim 41, wherein a station data processing means negotiates with the hub data processing means to be allocated a required number of channels in the reserved-state.

43. (currently amended) A system as claimed in claim 41, wherein a station data processing means requests an indication of the number of stations seeking to register, and the hub data processing means responds thereto, and wherein said station receives said indication by request and indication.

44. (currently amended) A system as claimed in claim 41, wherein a station data processing means requests an indication of the number of stations seeking to register, and the hub data processing means responds thereto, and wherein said station receives said indication by broadcast.

45. (previously presented) A system as claimed in claim 41, wherein a station data processing means requests an indication of the number of stations seeking to use a channel and the hub responding thereto, and wherein said station receives said indication by request and indication.

46. (previously presented) A system as claimed in claim 41, wherein a station data processing means requests an indication of the number of stations seeking to use a channel and the hub responding thereto, and wherein said station receives said indication by broadcast.

47. (previously presented) A system as claimed in claim 41, wherein a station data processing means requests the hub data processing means to be deregistered to give-up allocated channels.

48. (previously presented) A system as claimed in claim 41, wherein a station data processing means requests the hub data processing means to delay any data communication to the station for a period of time to be in a sleep mode.

49. (previously presented) A system as claimed in claim 36, wherein re-allocation includes temporarily ascribing use of reserved-state channel to a non-owning station.

50. (original) A system as claimed in claim 49, wherein said temporary use is rescinded following lapse of a time period of no use by the ascribed station.

51.-57. (cancelled)

58. (currently amended) A hub for a communications system, operable to have controlled data access to a medium in co-operation with a plurality of distributed stations, the hub comprising:

transceiving means for communications via the medium; and

data processing means coupled to the transceiving means;

and wherein said data processing means of the hub is operable to allocate a plurality of channels for data traffic between the stations and the hub, the number of channels being at least equal to the number of stations, and wherein each channel being is varyingly in a distinct one of an empty-, a reserved-, or an owner-state, and wherein:

(i) the empty-state provides a channel to which any station can have access,

(ii) the reserved-state provides a channel having an owner and to which a station having made a reservation with the hub, but not owning the channel, can have access if not being used by the owner, and further to which the owner can resume access on demand, and

(iii) the owner-state provides a channel to which only the owning station has access,

and further operable to re-allocate the respective state and/or the number of channels over time on the basis of each station's data requirements.

59. (original) A hub as claimed in claim 58, wherein the stations are mobile and the medium is free space.

60. (currently amended) A hub as claimed in claim ~~52~~ 58, wherein the data communications is over a medium having finite bandwidth.

61. (previously presented) A hub as claimed in claim 58, wherein there are at least as many channels in the owner state as there are stations.

62. (previously presented) A hub as claimed in claim 58, wherein a station data processing means, at any time, requires from the hub data processing means to be allocated one or more extra channels.

63. (previously presented) A hub as claimed in claim 58, wherein the hub data processing means further provides for management traffic between each station and the hub, and the management traffic includes a station negotiating with the hub to be allocated a required number of channels in the owner-state.

64. (previously presented) A hub as claimed in claim 58, wherein a station processing means negotiates with the hub data processing means to be allocated a required number of channels in the reserved-state.

65. (previously presented) A hub as claimed in claim 63, wherein a station data processing means requests an indication of the number of stations seeking to register, and the hub data processing means responds thereto, and wherein said station receives said indication by request and indication.

66. (previously presented) A hub as claimed in claim 63, wherein a station data processing means requests an indication of the number of stations seeking to register, and the hub data processing means responds thereto and wherein said station receives said indication by broadcast.

67. (previously presented) A hub as claimed in claim 63, wherein a station data processing means requests an indication of the number of stations seeking to use a

channel, and the hub responding thereto, and wherein said station receives said indication by request and indication.

68. (previously presented) A hub as claimed in claim 63, wherein a station data processing means requests an indication of the number of stations seeking to use a channel, and the hub responding thereto, and wherein said station receives said indication by broadcast.

69. (previously presented) A hub as claimed in claim 63, wherein a station data processing means requests the hub data processing means to be deregistered to give up allocated channels.

70. (previously presented) A hub as claimed in claim 63, wherein a station data processing means requires the hub data processing means to delay any data communication to the station for a period of time to be in a sleep mode.

71. (previously presented) A hub as claimed in claim 58, wherein re-allocation includes a temporarily ascribing use of reserved-state channel to a non-owning station.

72. (currently amended) A hub as claimed in claim 71, wherein said temporary use is rescinded following ~~laps~~ lapse of a time period of no use by the ascribed station.

73-80 (cancelled)

81. (currently amended) A wireless local area network having a medium access protocol to control access, the network comprising:

a hub having transceiving means for communication via free space paths and data processing means;

a plurality of distributed stations, each having transceiving means for communication with the hub via free space paths and data processing means;

and wherein said data processing means of the hub ~~and the stations co-operate to allocate~~ allocates a plurality of channels for data traffic between the stations and the hub,

the number of channels being at least equal to the number of stations, and each station owning at least one channel, and wherein each channel being is varyingly in a distinct one of an empty-, a reserved-, or an owner-state, and wherein:

(i) the empty-state provides a channel to which any station can have access,

(ii) the reserved-state provides a channel having an owner and to which a station having made a reservation with the hub, but not owning the channel, can have access if not being used by the owner, and further to which the owner can resume access on demand, and

(iii) the owner-state provides a channel to which only the owning station has access,

~~and co-operate to re-allocate~~ the hub re-allocates the respective state and/or the number of channels over time on the basis of each station's data requirements.

82. (original) A wireless local area network as claimed in claim 81, wherein the stations are mobile and the medium is free space.

83. (previously presented) A wireless local area network as claimed in claim 81, wherein the data communications is over a medium having finite bandwidth.

84. (previously presented) A wireless local area network as claimed in claim 81, wherein there are at least as many channels in the owner state as there are stations.

85. (previously presented) A wireless local area network as claimed in claim 81, wherein a station data processing means, at any time, requires from the hub data processing means to be allocated one or more extra channels.

86. (previously presented) A wireless local area network as claimed in claim 81, wherein the hub data processing means further provides for management traffic between each station and the hub, and the management traffic includes a station negotiating with the hub to be allocated a required number of channels in the owner-state.

87. (previously presented) A wireless local area network as claimed in claim 81, wherein a station processing means negotiates with the hub data processing means to be allocated a required number of channels in the reserved-state.

88. (previously presented) A wireless local area network as claimed in claim 86, wherein a station data processing means requests an indication of the number of stations seeking to register, and the hub data processing means responds thereto, and wherein said station receives said indication by request and indication.

89. (previously presented) A wireless local area network as claimed in claim 86, wherein a station data processing means requests an indication of the number of stations seeking to register, and the hub data processing means responds thereto, and wherein said station receives said indication by broadcast.

90. (previously presented) A wireless local area network as claimed in claim 86, wherein a station data processing means requests an indication of the number of stations seeking to use a channel, and the hub responding thereto, and wherein said station receives said indication by request and indication.

91. (previously presented) A wireless local area network as claimed in claim 86, wherein a station data processing means requests an indication of the number of stations seeking to use a channel, and the hub responding thereto, and wherein said station receives said indication by broadcast.

92. (previously presented) A wireless local area network as claimed in claim 86, wherein a station data processing means requests the hub data processing means to be deregistered to give up allocated channels.

93. (previously presented) A wireless local area network as claimed in claim 86, wherein a station data processing means requires the hub data processing means to delay any data communication to the station for a period of time to be in a sleep mode.

94. (previously presented) A wireless local area network as claimed in claim 86, wherein re-allocation includes a temporarily ascribing use of reserved-state channel to a non-owning station.

95. (original) A wireless local area network as claimed in claim 94, wherein said temporary use is rescinded following laps of a time period of no use by the ascribed station.

96-102 (cancelled)

103. (New) A method for communications access between a hub and a plurality of distributed stations over a medium, comprising providing a plurality of channels for data communications between the stations and the hub, wherein each channel is varyingly in a distinct one of an empty-, a reserved-, or an owner-state, and wherein:

(i) the empty-state provides a channel to which any station can have access;

(ii) the reserved-state provides a channel having an owner and to which a station having made a reservation with the hub, but not owning the channel, can have access if not being used by the owner, and further to which the owner can resume access on demand; and

(iii) the owner-state provides a channel to which only the owning station has access.

104. (New) The method of claim 103, wherein the number of channels is variable but at least equal to the number of stations.

105. (New) A method for controlling communications access between a hub and a plurality of distributed stations over a medium supporting a plurality of channels for data communications between the stations and the hub, the number of channels being at least equal to the number of stations, and each station owning at least one channel, comprising: the hub dynamically allocating the number of channels and the respective

state, and wherein each channel is varyingly in a distinct one of an empty-, a reserved-, or an owner-state, and wherein:

- (i) the empty-state provides a channel to which any station can have access;
- (ii) the reserved-state provides a channel having an owner and to which a station having made a reservation with the hub, but not owning the channel, can have access if not being used by the owner, and further to which the owner can resume access on demand; and
- (iii) the owner-state provides a channel to which only the owning station has access.

106. (New) A hub for a communications system, operable to have controlled data access to a medium in co-operation with a plurality of distributed stations, the hub comprising:

transceiving means for communications via the medium; and

data processing means coupled to the transceiving means, and operable to dynamically allocate a plurality of channels for data traffic between the stations and the hub, the number of channels being at least equal to the number of stations, and each channel being varyingly in a distinct one of an empty-, a reserved-, or an owner-state, and wherein:

- (i) the empty-state provides a channel to which any station can have access,
- (ii) the reserved-state provides a channel having an owner and to which a station having made a reservation with the hub, but not owning the channel, can have access if not being used by the owner, and further to which the owner can resume access on demand, and
- (iii) the owner-state provides a channel to which only the owning station has access.

107. (New) A system as claimed in claim 36, wherein each said channel has a plurality of uplink and downlink slots, and wherein the hub varies the number of slots within a channel to account for each station's data requirements.

108. (New) A hub as claimed in claim 58, wherein each said channel has a plurality of uplink and downlink slots, and wherein said data processing means varies the number of slots within a channel to account for each station's data requirements.

109. (New) A wireless local area network as claimed in claim 81, wherein each said channel has a plurality of uplink and downlink slots, and wherein the hub varies the number of slots within a channel to account for each station's data requirements.